

CLAIMS

What is claimed is:


1. A method comprising:
adhering the active face of a singulated semiconductor die to a sacrificial carrier;
encapsulating a backside of the singulated semiconductor die, and thereby
forming a substantially rigid assembly structure;
separating the assembly structure from the sacrificial carrier to expose the active
face of the singulated semiconductor die;
layering an insulating material over the active face of the singulated semiconductor
die; and
layering a conductive material over the insulating material, wherein a portion of the
conductive material contacts at least one die bond pad.
2. The method of claim 1, wherein layering the insulating material further comprises
creating at least one opening in the insulating material to expose at least one die
bond pad.
3. The method of claim 1, wherein layering the conductive material further comprises
creating at least one conductive trace in the conductive material.
4. The method of claim 3 further comprises creating a plurality of package terminals.
5. The method of claim 1, wherein layering the insulating material over the active face
of the singulated semiconductor die further comprises layering a material selected
from a group consisting of polyimide, benzocyclobutene (BCB) and
polybenzoxazole (PBO).
6. The method of claim 1, wherein layering the conductive material further comprises
layering copper over the insulating material.
7. A mechanically encased semiconductor die assembly comprising:

a first insulating layer, wherein the first insulating layer is layered over an active face of the singulated semiconductor die;
a first conductive layer, wherein the first conductive layer is layered over the first insulating layer; and
an encapsulant covering a portion of a backside of the singulated semiconductor die.

8. The mechanically encased semiconductor die assembly of claim 7, wherein the insulating layer has an opening exposing at least a portion of the active face of the singulated semiconductor die.
9. The mechanically encased semiconductor die assembly of claim 8, wherein the opening exposes a die bond pad.
10. The mechanically encased semiconductor die assembly of claim 9, wherein the first conductive layer fills at least a portion of the opening, contacting the die bond pad.
11. The mechanically encased semiconductor die assembly of claim 7, wherein the first conductive layer further comprises at least one conductive trace.
12. The mechanically encased semiconductor die assembly of claim 11, wherein the first conductive layer further comprises at least one package terminal.
13. The mechanically encased semiconductor die assembly of claim 7, further comprising a stiffener attached to a backside of the singulated semiconductor die.
14. A semiconductor die assembled into a semiconductor package by a method comprising:
applying an adhesive to a sacrificial carrier;

placing the semiconductor die onto the adhesive, wherein an active face of the semiconductor die contacts the adhesive;
applying an encapsulant over the semiconductor die, forming a substantially rigid assembly structure;
separating the assembly structure from the adhesive;
applying an insulating layer over the active face of the semiconductor die; and
applying a conducting layer over the insulating layer, wherein a portion of the conducting layer contacts at least one die bond pad.

15. The semiconductor die of claim 14, wherein applying the insulating layer further comprises patterning a plurality of openings through the insulating layer for exposing at least one die bond pad.
16. The semiconductor die of claim 15, wherein the patterning the insulating layer is a photolithography process.
17. The semiconductor die of claim 14, wherein applying the conducting layer further includes patterning a plurality of electrical traces.
18. The semiconductor die of claim 17, wherein patterning the conducting layer is a photolithography process.
19. The semiconductor die of claim 17, wherein patterning the conducting layer further produces a plurality of package terminals.
20. A mechanically encased semiconductor die assembly comprising:
a semiconductor die having an active face;
an interconnect structure constructed in place and coupled to the active face of the semiconductor die; and



a plurality of package terminals on a bottom face of the interconnect structure coupled to a plurality of die bond pads on the active face of the semiconductor die.